Regional Traffic Signal Management Programs Eddie Curtis, FHWA Office of Operations / Resource Center eddie.curtis@fhaw.dot.gov (404) 562-3920

What is Traffic Signal Operations?

The prioritization of objectives and active collection of information to efficiently manage traffic signal infrastructure to maximize safety and throughput while minimizing delays.

What is a Regional Traffic Signal Management Program?

An integrated program to prioritize objectives and optimize the performance of the existing traffic signal infrastructure though implementation of cross-jurisdictional systems, services, and projects designed to preserve capacity and improve security, safety, and reliability of transportation systems.

Elements of a Regional Traffic Signal Program?

- People Leadership and stakeholders that are instrumental to developing and sustaining regional programs.
- Processes The objectives, agreements, coordination and integration. who collaborates with who, how and why.
- Programs Activities that are implemented to achieve the regional objectives.
 Traffic signal retiming program, training, performance measurement, outreach, maintenance.

Developing a Regional Traffic Signal Operations Program?

- Program Champion
- Regional Traffic Signal Operations Review
 - Regional Concept of Transportation Operations
 http://www.ops.fhwa.dot.gov/program_areas/rtocc.htm

Where the programs are?

Denver Regional Council of Governments (DRCOG)

http://www.drcog.org/index.cfm?page=TrafficSignalProgram

The Denver Regional Council of Governments (DRCOG) administers the federally funded "pool" project titled "Regional Traffic Signal System Improvement Program" or TSSIP. The purpose of TSSIP is to implement cost-effective traffic signal timing and coordination improvements that reduce travel time and harmful auto emissions within the DRCOG Transportation Management Area (TMA). There are now more than 3,500 traffic signals maintained and operated by 32 different jurisdictions within the TMA. Primary Activities: Develop objectives, prioritize capital improvements, develop timing and coordination plans and performance measurement.

Operation Green Light (OGL)

Kansas City, Mid-America Regional Council (MARC)

http://www.marc.org/transportation/ogl/

Operation Green Light exists to significantly reduce air pollution, stops, delays, driver frustration, and fuel consumption in the Kansas City area by optimizing the travel times, safety and traffic flow along arterial corridors. There are 25 partner agencies, including the FHWA, MODOT, KDOT. The system features a centrally managed traffic signal system (TransSuite), managing over 600 intersections in 20 cities. MARC manages the system and provides signal timing and coordination settings for traffic signal managed by the system.

Los Angeles County Metropolitan Transportation Authority (Metro) – Traffic Signal Management Program

The LACMTA has developed a Regional Traffic Signal Training program aimed at improving the Knowledge, Skills and Abilities of practitioners and technicians engaged in the day-to-day operation and maintenance of traffic signals in the LA metro area. The program is low cost and trains both operating agency and the consulting work force.

Puget Sound Regional Transportation Operations Committee (PSRC)

http://www.psrc.org/boards/advisory/rtoc.htm

During the spring of 2006, the PSRC invited FHWA to conduct a regional traffic signal operations review. The review team presented a summary report with 10 recommendations to improve the level of regional collaboration, activities and practices that support traffic signal operation and maintenance. The region is currently implementing an action plan to: Influence planning and programming, educate decision-makers and public regarding benefits of regional operations, develop a Regional Concept of Transportation Operations.

Pima County Association of Governments – (PAG)

http://www.pagnet.org/documents/Transportation/PAGRCTOVisionOverview.pdf
The PAG facilitated the development of an RCTO with ten of its partner agencies. The
RCTO address freeways, arterials, multi-modal/transit operations. The group recently
completed the RCTO and has developed objectives, an action plan and performance
measures for arterial management and operations.

Reno Regional Transportation Commission (RTC)

http://www.rtcwashoe.com/streets-highways-31

The Regional Transportation Commission, in a cooperative project with the City of Reno, City of Sparks, Washoe County, Nevada Department of Transportation and the Federal Highway Administration is working to retime traffic signals throughout the region. RTC develops capital improvement projects and develops signal timing for regional corridors that have been designated by the program participants. RTC has developed an outreach program to inform public officials and citizens about the benefits of the program.

Benefits of Regional Traffic Signal Operations

The coordination of operations through regional collaboration benefits the system users and the agencies involved. This section will highlight the potential benefits both quantitative and anecdotal that are typically the result of improving signal timing, traffic signal operational parameters and coordinating operational and maintenance activities.

User Benefits

Customer-Oriented – In a regional setting the focus is shifted from individual agency objectives and limitations to collective objectives. Regional objectives are customer oriented and focus on providing a greater level of consistency and reliability.

Central Point of Communication – A regional organization provides a central point of contact, the public does not have to navigate jurisdictional boundaries or identify separate responsibilities among agencies.

Consistent Operations – Consistent training and certification requirements translate into a consistent travel experience as agencies utilize standardized practices to develop and maintain signal timing parameters such as clearance intervals and coordination settings.

Equitable Operations – During incidents, workzone activities and special events it is often daunting for agencies to share information and often operate unilaterally within their own jurisdiction to manage unusual occurrences. In a collaborative environment access to information becomes seamless and unusual occurrences can be resolved in a coordinated manner to minimize impacts temporally and spatially.

Institutional Benefits

Efficiency and Cost Savings – Pooling resources, expertise and equipment purchases creates leverage allowing agencies to share cost for purchases, training and support resulting in significant cost savings.

Technical Expertise & Proficiency – Development of regional training programs, certifications and consistent requirements for staff knowledge, skills and abilities enhances the expertise regionally and creates a conduit for training a pool of potential new staff by incorporating the resources of universities and technical schools to facilitate this process.

Broadened Perspectives and Regional Outlook – By participating in the development and implementation of regional objectives, measuring and reporting performance and prioritizing needs regionally; participants gain a greater understanding of overall needs and can adopt regional approaches and perspectives.

Prioritization of Funding – A regional program that incorporates the MPO, State and local agencies into the process of planning and implementing regional projects have a

greater chance of receiving funding through federal and state aid processes because they are supported by multiple agencies and serve a greater cross-section of the public.

Improved Communication and Working Relationships – Regional Operations engage multiple levels within partner organizations, fostering new relationships and improved communication among participants. The trust established through relationships leads to cooperation beyond direct activities leading to an exchange in experience and lessons learned in other areas.

Public Support and Acceptance – By measuring and reporting performance, providing a central point of contact and outreach activities to promote system improvements and to provide technical information; greater support from public stakeholders can be gained.

System Operations Benefits

Decision Support – Operating regionally facilitates the exchange of data and information that feeds back into decision making processes both for operations and planning.

Reductions in Climatic Impacts – Improving signal timing alone has benefit cost ratios of up to 40:1. This translates into reducing harmful emissions and fuel consumptions which impact both the climate and economy. Reductions in travel time, delay and improvements to safety are to be expected when more consistent and efficient traffic signal operations occurs regionally.

Proactive Operation – The integration of facilities, equipment, personnel and resources can enable agencies to provide more attention to system operation and focus maintenance activities. The measurement of performance instead of relying on complaint based systems allows greater ability to identify and prioritize where resources are needed and invested.

It is clear that the region achieve significant benefits through the development and implementation of a RCTO. The more rapidly this effort can be completed the sooner the region will repeat the above benefits.